



BARD MANUFACTURING COMPANY, INC. WA3S-WA5S Series Air Conditioner Engineering Specification Guide

1.0 GENERAL

Furnish and install a self-contained, vertical, exterior wall mount, through-the-wall air conditioner to be manufactured by Bard Manufacturing Company, Inc. The unit shall be approved and listed by Intertek ETL Listed (ETL US/C). Unit shall be factory assembled, pre-charged, pre-wired, tested and ready to operate. Unit performance shall be certified in accordance with the Air Conditioning and Refrigeration Institute Standard 390-2003 for Single Package Vertical Units. Unit efficiency shall be specified by EER and IPLV.

Manufacturers: Capacities shall be as indicated on drawings and units shall be manufactured by Bard Manufacturing Company, Inc. or prior approved equal.

2.0 CONSTRUCTION FEATURES

2.1 CABINET

Construction shall be a single, enclosed, weatherproof casing constructed of 20-gauge galvanized steel. Unit base is constructed of 16-gauge galvanized steel¹. Each exterior casing panel to be bonderized and finished with baked-on exterior polyester enamel paint² prior to assembly. The baked-on cured paint finish shall pass the industry rub test with a minimum of 72 rubs MEK (Methyl Ethyl Ketone) or standard rub test of a minimum of 100 rubs using Toluene. Cooling section shall be fully insulated with 1-inch fiberglass to prevent sweating and to muffle sounds. Openings shall be provided for power connections. Access openings appropriate for outside structure to all fan motors and compressor for making repairs and for removing internal components without removing unit from its permanent installation. Fresh air intake and outdoor coil shall be protected from intrusions by a sturdy metal grating with less than 1/4 inch openings.

Colors (Select one)

Beige (standard)

Gray

Desert Brown

Dark Bronze

Stainless Steel

Notes:

¹ Stainless steel option is 16-ga SS base

² Paint finish details do not apply to Aluminum or Stainless Steel cabinets

Aluminum

2.2 DRAIN PAN

Drain pan shall be constructed of 20-gauge stainless steel.

2.3 INSULATION

Portions of the unit that come in contact with the indoor air stream shall be insulated with high density 1 inch fiberglass, foil faced insulation.

2.4 MOUNTING BRACKETS

Full-length side mounting brackets shall be an integral part of the cabinet.

2.5 REFRIGERATION SYSTEM

All models shall use a high efficiency scroll compressor with step capacity providing 2 stages of control. The compressor shall be covered by a 5-year parts warranty. The refrigeration circuit shall be equipped with factory installed high and low-pressure controls. The refrigeration control shall be a factory installed TXV. Compressor shall be mounted on isolation rails with double grommets. Insulated sound cover shall be provided to reduce compressor noise. Crankcase heater shall be provided. Unit shall be provided with R-410A (HFC) non-ozone depleting refrigerant. Unit shall be provided with liquid line filter/drier.

2.6 CONDENSER FAN MOTOR

The condenser fan motor shall be a permanent split capacitor, outdoor motor. Condenser fan and motor shall be in slide out configuration for easy access.

2.7 INDOOR BLOWER MOTOR

The indoor blower motor shall be a high efficiency, variable speed (ECM) type motor. Motor shall provide soft start, slowly ramping up to speed to provide quiet operation. The motor shall be self-adjusting to provide proper airflow at high static pressures without user adjustment or wiring changes by the user. The motor shall be programmed for 20-second ramp up and 60-second down rate for quiet, smooth starting and stopping.

2.8 ELECTRICAL COMPONENTS

Electrical components are easily accessible for routine inspection and maintenance through front service panels. Circuit breaker is standard on all 208/230-volt models and rotary disconnect standard on all 460-volt models. Circuit breaker/rotary disconnect access is through lockable access panel. Phase rotation monitors shall be installed on all 3-phase units to prevent reverse rotation.

2.9 CONTROL CIRCUIT

The internal control circuit shall consist of a current limiting 24VAC type 50VA transformer. To prevent rapid compressor short cycling, a five-minute time delay circuit shall be factory installed. A low-pressure bypass shall be factory installed to prevent nuisance tripping during low temperature start-up.

All units with 3-phase power shall include factory mounted phase rotation monitor. This device shall protect scroll compressor from reverse rotation and also protect unit from phase failure. If 3-phase power is incorrectly connected at the field power connections, the phase monitor shall lock out the unit and a red light will illuminate indicating incorrect phase. Also if a power leg is lost, the phase monitor will lockout the unit due to phase imbalance. Once the condition is corrected, turning the power off at the circuit breaker or disconnect will reset the phase monitor.

Compressor Control module shall be factory installed with:
Built in delay-off timer adjustable from 30 seconds to 5 minutes.
2 minute on- delay if power is interrupted.
120 second bypass for low pressure control
Soft and manual lockouts for high and low pressure control.

3.0 HEAT OPTIONS (Select One)

3.1 None

3.2 Electric Heat

The heat pump shall have a factory installed electric resistance heater available that is designed specifically for application in the WAS Series unit heater shall include automatic limit safety controls.

4.0 VENTILATION OPTIONS (Select One)

WAS models are designed to provide optional ventilation packages to meet all of your ventilation and indoor air quality requirements. All ventilation packages are factory or field installed, and easily removable for service.

4.2 BLANK OFF PLATE

OPTIONAL

A blank off plate covers the air inlet openings that restrict any outside air from entering the unit. The blank off plate should be utilized in applications where outside air is not required to be mixed with the conditioned air.

4.3 COMMERCIAL ROOM VENTILATOR OPTIONAL

The built-in commercial room ventilator is internally mounted and allows outside ventilation air, up to 50% of the total air flow rating of the unit, to be introduced through the air inlet openings. It includes a built-in exhaust air damper. The damper can be easily adjusted to control the amount of fresh air supplied into the building. Automatic control shall be provided to maintain desired ventilation rate during the different supply airflows of fan only, Stage 1 and Stage 2 modes of operation. The CRV can be controlled by indoor blower operation or field controlled based on room occupancy using CO2 controller. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality.

4.4 Economizer

The built-in economizer system is internally mounted behind the service door and allows outdoor air to be introduced through the air inlet openings. The amount of outdoor air varies in response to the system controls and settings defined by the end user. It includes a built-in exhaust air damper. The economizer is designed to provide “free cooling” when outside air conditions are cool and dry enough to satisfy cooling requirements without running the compressor. This in turn provides lower operating costs, while extending the life of the compressor.

ECONWMT Equipment Building versions have extended air intake hood to deliver up to 100% of cooling rated airflow.

14.25" for ECONWMT-E2A or T2A, and E3A or T3A

15" for ECONWMT-E5A or T5A

ECONWMS Classroom versions have 3" air intake hood to deliver up to 75% of cooling rated airflow.

Standard Features:

Fully modulating

Honeywell Direct Drive Hi-Torque Actuator

No linkage required

Simple single blade design

Positive shut-off with non-stick gaskets

Electronic DB and/or Enthalpy sensors depending upon version

Honeywell JADE electronic economizer module with precision settings and diagnostics

DB or Enthalpy outdoor decision economizer versions available

4.5 ENERGY RECOVERY VENTILATOR OPTIONAL

The Energy Recovery Ventilator (ERV) shall consist of 2 rotary wheels in an insulated cassette frame with seals, drive motor and belt. The ERV assembly shall also include intake and exhaust blowers. The entire assembly shall easily slide in or out of the ventilation section, allowing for maintenance or replacement. The total energy wheel shall be coated with silica gel desiccant, permanently bonded without the use of binders or adhesives. The coated segments shall be washable with detergent or alkaline coil cleaner and water. Desiccant shall not dissolve or deliquesce in the presence of water or high humidity. All diameter and perimeter seals shall be provided as part of the cassette assembly and shall be factory set. Drive belts shall not require external tensioners or adjustment. Cassette wheels shall include rims to prevent belts from slipping off wheels. Intake and exhaust blowers shall have selections of high, medium or low speed and selected independently, to allow for positive pressurization if desired. The ERV cassette including parts and media shall include 5year warranty subject to terms and conditions of Bard's warranty. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality.

5.0 FILTER OPTIONS - (Select One)

5.1 2" Fiberglass- Pleated

6.0 UNIT CONTROL OPTIONS

6.1 Low ambient control

6.2 Alarm relay

7.0 OPERATING CONTROLS (Field Installed)

7.1 None

7.2 Electronic non-programmable, manual changeover

7.3 Electronic programmable, auto changeover

8.0 INSTALLATION

8.1 Installation shall be done in strict adherence to Bard's Installation Instructions.

10.0 WARRANTY

- 10.1** The Bard product specified shall be free from defects in materials and workmanship for a period of 5 years for compressor, and for a period of 5 years for all parts. Warranty period shall start from date of installation as stated on warranty card; or from date of shipment if no warranty card is returned to Bard Manufacturing. Equipment must be used under normal conditions and warranty is subject to Bard Manufacturing's standard limited warranty statement.